Economic Development of the Świętokrzyskie Voivodship - An Empirical Analysis

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Abstract

The Świętokrzyskie Voivodship (or region) is situated in the south-east of Poland. The region is located in the center of the country, where a lot of important communication routes cross. Economy of the Świetokrzyskie Voivodship is rooted in traditional sectors based on local resources. The strongest branches include: construction sector (both services and production of construction materials, with a strong emphasis on mining), metallurgy and machinery industry (foundry and metal processing, e.g. steelworks), and agricultural sector (food production).

The main aim of this article is to present the role of factor "entrepreneurship" from the perspective of SWOT matrix in the analysis of the Świetokrzyskie Voivodship economic development.

The central research problem explored in this paper is - what are the main opportunities and threats of Świętokrzyskie Voivodship development.

The poll was conducted among 91 inhabitants of Świetokrzyskie Voivodship who expressed their opinions in questionnaires. The research was based on inhabitants' opinions concerning particular courses of development, i.e. tourism, services, handicraft, industry, agriculture, food processing, and environmental protection.

Introduction: Regional economic development: What is meant by the term region? Christaller and Losch provide an early approach to defining a region[1]. In Christaller and Losch's central place theory, regions are defined as hierarchical systems of central places or cities. A more popular approach among more recent theorists has been to define a region in terms of a spatially interdependent or "nodal" labor market. According to Hoover and Giarratani, nodal regions[2] have two characteristics: (1) they are functionally integrated internally to the extent that labor, capital, or commodity flows are more common within the region than with another region, and (2) within the region, activities are oriented toward a single point, or node, where there is the presumption of dominance or order of the node over the surrounding peripheral area. Richardson extends the nodal

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[1] Z. P. Neal, *From Central Places to Network Bases: A Transition in the US Urban Hierarchy, 1900-2000*, "City and Community" 2011, Vol. 10, No. 1, p. 49.

[2] L. Diaconu, *Regional Economic Disparities in Romania. Comparative Analysis of the North-East and West Development Regions*, "The USV Annals of Economics and Public Administration" 2014, Vol. 14, Issue 2, p. 76.

concept to include polycentric regions that have several nodes and several peripheries but that exhibit high degrees of internal functional integration[3].

Alternative definitions of regions have been proposed to account for the shortcomings of the traditional functional economic area approach. The United States Census Bureau relies on estimates of commuting patterns to delineate metropolitan statistical areas that are similar to Fox and Kumar's functional economic areas[4] but correspond to administrative boundaries (counties) rather than actual commuting areas. Regions have also been defined in terms of the degree of internal homogeneity with respect to some factor[5].

Table 1. A schematic representation of location theory and regional growth and local development theories

Theories Features	Location theories	Regional growth theories	Local development theories	Local growth theories
Space	Physical-metric	Uniform-abstract	Diversified-relational	Diversified-stylized
Aim of the theories	Identification of market areas (demand extended on space; supply punctiform); identification of production areas (demand punctiform, supply extended on space)	Identification of regional growth determinants where growth is intended as: employments increase, individual well-being	Identification of local development determinants, where development is intended as territorial competitiveness	Identification of local growth determinants, where growth is intended as territorial competitiveness
Nature of the theories	Quantitative and qualitative	Quantitative	Qualitative	Quantitative
Years of conception	1940s	1950s and 1960s	Middle 1970s and onward	1990s and onward

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[3] C. J. Dawkins, *Regional Development Theory: Conceptual Foundations, Classic Works, and Recent Developments*, "Journal of Planning Literature" 2003, Vol. 18, No 2, p. 133.

[4] P. C. Cheshire, M. Nathan, H. G. Overman, *Urban Economics and Urban Policy. Challenging Conventional Policy Wisdom*, Edward Elgar Publishing, Cheltenham-Northampton 2014, p. 161.

[5] C. J. Dawkins, *Regional Development Theory: Conceptual Foundations, Classic Works, and Recent Developments*, "Journal of Planning Literature" 2003, Vol. 18, No 2, p. 134.

Main theories and authors	Industrial location choice theories (Weber, 1929; Hoover, 1933; Lösch, 1954) Allocation of land among producers and residents: industrial and residential location choice theories (von Thünen, 1826; Alonso, 1960; Fujita, 1989) Urban hierarchy (Christaller, 1933; Lösch, 1954)	Keynesian regional growth theories (North, 1955) Neoclassical regional growth theories (Borts and Stein, 1960)	Exogenous determinants of territorial competitiveness: The growth pole theory (Perroux, 1955); the role of multinationals on regional development (Lipietz, 1980; Blomstrom and Kokko, 1988) innovation diffusion (Hägerstrand, 1952) Endogenous determinants of territorial competitiveness: Industrial district theories (Becattini, 1979) Milieux innovateurs (Camagni, 1991; Maillat et al., 1993) Learning region (Lundvall, 1992)	Cumulative causation model (Myrdal, 1955 and Kaldor, 1970 as pioneering theories) New economic geography (Krugman, 1991) Endogenous growth model (Lucas, 1988; Romer, 1986)

Source: R. Capello, *Location, Regional Growth and Local Development Theories*, "Aestimum"2011, Vol. 58, p. 5.

The neoclassical theories developed by Solow and Swan[6] were starting points that facilitated the development of comprehensive models by other economists, such as Romer and Lucas[7]. However, Romer and Lucas lacked the specificity of human capital, allowed for a technology spillover effect[8] and used impractical constant returns to scale assumption. The studies by Romer and Aghion and Hewitt combined research and development theories and imperfect competition into the framework of economic growth theories[9]. However, a number of studies focused on the role of institutions on growth. The latest studies by Acemoglu and Robinson, Prescott, Taylor, and Summers argue that

[6] R. W. Diamand, B. J. Spencer, *Trevor Swan and the Neoclassical Growth Model*, "NBER Working Paper Series" 2008, WP. 13950, p. 1.
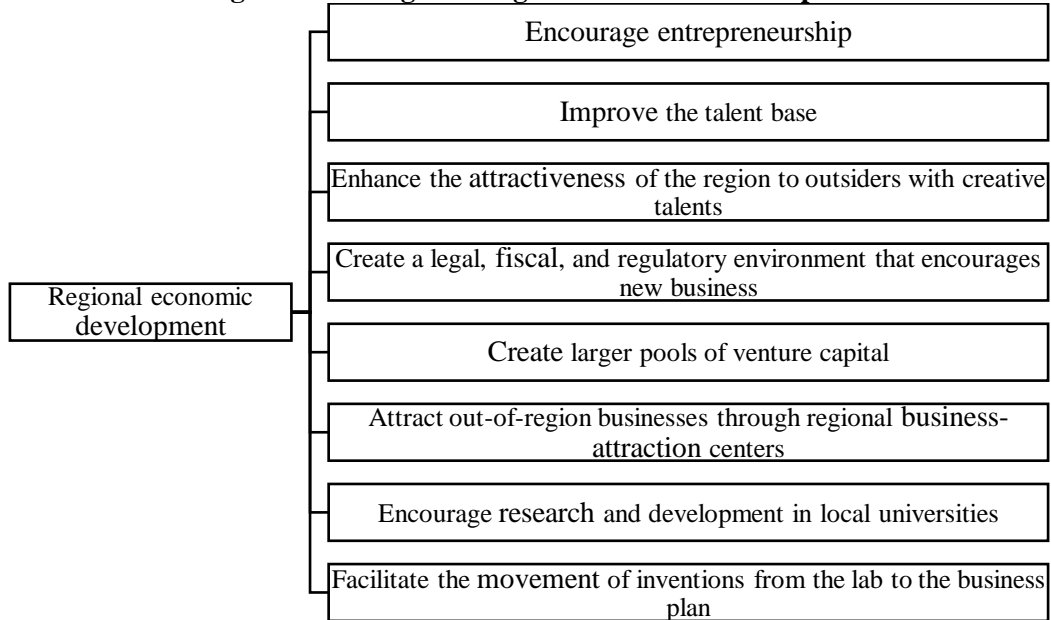
[7] F. Tezel, *Evolution of economic growth models (Solow, Romer and Lucas)*, https://fatihtezel.wordpress.com/2013/01/06/evolution-of-economic-growth-models-solow-romer-and-lucas/ [January 01, 2013].

[8] V. H. Amavilah, Knowledge = *Technology + Human Capital and the Lucas and Romer Production Functions*, "REEPES Thinking Paper" 2014, No. 22014, p. 3-4.

[9] P. Aghion, U. Akcigit, P. Howitt, *What Do We Learn From Schumpeterian Growth Theory?*, http://scholar.harvard.edu/files/aghion/files/what_do_we_learn_0.pdf [March 03, 2015].

policies are the main generators of growth and that incorrect decisions lead to poor economic performance. Economic growth, according to these studies, is defined as an increase in a country's GDP or GNP, and it occurs when there is an increase in the multiplied product of population and per capita income[10].

Figure 1. Strategies of regional economic development

Regional economic development

- Encourage entrepreneurship
- Improve the talent base
- Enhance the attractiveness of the region to outsiders with creative talents
- Create a legal, fiscal, and regulatory environment that encourages new business
- Create larger pools of venture capital
- Attract out-of-region businesses through regional business-attraction centers
- Encourage research and development in local universities
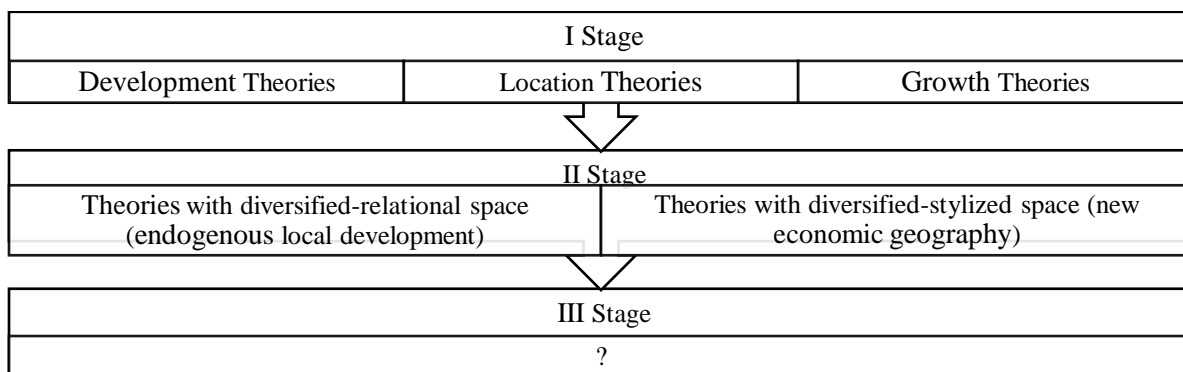- Facilitate the movement of inventions from the lab to the business plan

Source: *How does regional economic development work?*, http://understandingsociety.blogspot.com/2008/03/how-does-regional-economic-development.html [March 06, 2008].

Growth theory has traditionally focused on physical and human capital accumulation, and, in its endogenous growth variant, on technological change. But accumulation and technological change are at best proximate causes of economic growth[11].

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[10] H. F. Zealther, R. E. Khalil, K. Fakih, *Economic development and sub-regional identities*, "The Journal of Developing Areas" 2015, Vol. 49, No. 1, p. 157.

11 D. Rodrik, A. Subramanian, F. Trebbi, *Institutions Rule: The Primacy of Institution Over Geography and Integration in Economic Development*, http://vhnhorm.iie.com/publications/papers/subramanian0204.pdf, February 2004, p. 2.

Figure 2. Convergence among Theoretical Approaches

I Stage		
Development Theories	Location Theories	Growth Theories

II Stage	
Theories with diversified-relational space (endogenous local development)	Theories with diversified-stylized space (new economic geography)

III Stage
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Source: Based on: R. Capello, *Location, Regional Growth and Local Development Theories*, "Aestimum"2011, Vol. 58, p. 5.

Region depends on innovation as a source of economic sustainability and growth. Innovations must be commercialized to contribute to the local economy. As such, region needs to create processes that foster innovation.

It is necessary to understand what are the basic factors of competitiveness (natural or artificial) and competitive advantages (primary or secondary) of the region in order to create an effective regional policy for the improvement of competitiveness. Natural factors (part of nature or formed as a long development process of a territory) are the basis for forming primary competitive advantages. Artificial factors (that are results of a concrete policy) are the foundation for forming secondary competitive advantages. Primary factors can include natural resources; technical and economic conditions for their extraction; benefits of the geographical location; presence of lands suitable for use; favorable agricultural, climatic, tourist, and recreational conditions; and the amount of labor force and its structure and quality. Secondary factors can include the scientific and innovative potential, conditions for industrial cooperation, reputation of a region, infrastructure, and the investment climate.

Regional development theory focuses on the development processes in the region[12]. Accordingly, the determined regularity related to their occurrence, and further identify the cause of the dynamics and structure. It should also assess the way and conditions affecting formation of the material base and identifies factors development. This theory also draws attention to the rational formation of the development process from the point of view of both individual residents and community residents region or country[13]

Location, demographic and labour market structure of the Świętokrzyskie Voivodship: Kielce and the Świętokrzyskie Voivodship is a Polish region belonging to the Eastern Polish territory. With its area of 11.7 thousand km2 (3.7% of the territory of Poland) the Świętokrzyskie Voivodship is one of

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[12] A. J. Scott, M. Storper, *Regions, Globalization, Development*, „Regional Studies" 2003, Vol. 37, p. 580.

[13] S. Korenik, *Rozwój regionu ekonomicznego na przykładzie Dolnego Śląska*, Wydawnictwo Akademii Ekonomicznej we Wrocławiu, Wrocław 1999, p. 27.

the smallest in Poland[14]. It is further divided into 102 municipalities, 13 land *poviats* and one city – Kielce – as a separate *poviat* (urban *poviat*).

The capital city of the Świętokrzyskie Voivodship - Kielce is an economic and administrative center of the region.

According to data published by the Main Statistical Office in December 2013, the population of the Świętokrzyskie Voivodship was 1,268,239 inhabitants[15] with a population density of 108 people/1km2.

The Świętokrzyskie Voivodship is characterized by a relatively high unemployment rate. According to data published by the Statistical Office in Kielce (28 February 2013), the rate of registered unemployment was 16.3%, which is approx. 0.1% higher than in January 2013[16].

In the northern part of the province (formerly Old Polish Industrial Region) since many years heavy industry has been developing (it is currently experiencing a difficult period) and metallurgical (ostrowiecki district), metal (skarżyski district), mechanical (starachowicki district), foundry (konecki district). The southern and eastern parts of the region are dominated by agriculture, particularly well-developed gardening and fruit-growing industry (district of Sandomierz).

Table 2. Świętokrzyskie Voivodship

Major universities	The Jan Kochanowski University in Kielce Kielce University of Technology
Number of students (2013)	22 748
Number of graduates (2013)	7 229
Working age population (Dec. 2013)	797 885
Unemployment rate (July 2014)	14,6%
Average monthly wage (July 2014)	3 381.95 zł

Source: *Investing in Poland. Trendbook Poland 2015*, Warsaw Business Journal Group, Warsaw 2014, p. 86.

Economic development of many areas in Świętokrzyskie Voivodship is supported by the Special Economic Zone "Starachowice" S.A. in Starachowice.

Advantages of Świętokrzyskie Voivodship:
- readily available and highly qualified industrial workforce;
- well-developed economic infrastructure, e.g. financial institutions in Kielce and other big cities;
- developed educational base;
- promising opportunities for the development of agriculture and food production;
- rich mineral deposits used for the production of building materials;
- mineral springs known for their therapeutic properties;
- various health resorts, hotels and private guesthouses;
- successive modernization of road network (S7 Expressway and national roads: 74 and 73);

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[14] *Information for Investors*, http://swietokrzyskie.coie.gov.pl/en/dla-inwestorow/a,64,information-for-investors.html [March 11, 2015].

[15] *Investing in Poland. Trendbook Poland 2015*, Warsaw Business Journal Group, Warsaw 2014, p. 86.

[16] B. Kruszewski, *Analysis of the Labour Market in the Świętokrzyskie Voivodship*, http://www.outsourcingportal.eu/articles,analysis-of-the-labour-market-in-the-swietokrzyskie-voivodship,,2,394,3,0.html [July 03, 2013].

- relatively low-cost workforce (gross labor cost – from 1 000 to 2 300 PLN);
- databases of areas available for investment[17].

   It is worth to mention about Regional Operational Programme for Świętokrzyskie Voivodship related to the EU 2020 Strategy. The objective of the Operational Programme is to increase the competitiveness of the region ensuring in parallel the improvement of the living conditions of its inhabitants through the codes of sustainable development[18].

Table 3. Selected expected results of the Regional Operational Programme for Świętokrzyskie Voivodship

Item No.	Description
1.	An increase in business R&D expenditure in relation to GDP (from 0,38 % to 0, 47%)
2.	Increase in the share of production of electricity from renewable sources (from 15,3% to around 19%)
3.	An increase of energy efficiency savings in public buildings and enterprises
4.	An improvement in the region's connectivity by road and rail
5.	An increase in the number of unemployed and inactive who found a job after support from the programme, with a participation of about 30,000 jobseekers
6.	An increase in the number of people who have improved their skills thanks to support by the programme
7.	The creation of some 1,296 new places in nurseries and some 1,313 places in kindergartens
8.	Support to more than 35,000 people at risk of exclusion

Source: *ROP 13 Regional Operational Programme for Świętokrzyskie Voivodship*, http://ec.europa.eu/regional_policy/index.cfm/en/atlas/programmes/2014-2020/Polska/2014pl16m2op013 [March 25, 2015].

Methodology and hypothesis development: The main goal of this article is: to investigate the role of factor "entrepreneurship" from the perspective of SWOT matrix in the analysis of the Świętokrzyskie Voivodship economic development.

   The central research problem explored in this paper is: what are the main opportunities and threats of Świętokrzyskie Voivodship development.

The detailed research questions of interest are as follows:
- Q1: Is there a relation between entrepreneurship development and labour market in the city of Kielce?
- Q2: What is the perception of "economy and entrepreneurship" as a potential of Świętokrzyskie Voivodship development?
- Q3: What is the perception of „low level of investment attractiveness" as a barrier of Świętokrzyskie Voivodship development?
- Q4: What are main opportunities and threats of the Świętokrzyskie Voivodship development?

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[17]   *Świętokrzyskie voivodship*, http://whyeasternpoland.eu/en/why-is-worth-/why-here-/locations/swietokrzyskie-81 [February 20, 2015].

[18]   *ROP 13 Regional Operational Programme for Świętokrzyskie Voivodship*, http://ec.europa.eu/regional_policy/index.cfm/en/atlas/programmes/2014-2020/Polska/2014pl16m2op013 [March 25, 2015].

An open-ended online survey instrument was developed for this study. Data were collected from inhabitants of Świętokrzyskie Voivodship between 19 to 39 years old.

To encourage response and to speed the data gathering process, Internet-based survey was constructed. The questionnaire was published in December 2014 and closed two months later. The survey received a total of 91 responses.

To verify analyze research questions there were used measures of descriptive statistics (analysis of the frequency) and the Spearman's rank correlation coefficient.

Data analysis and results: The demographic information indicates that 33% of the respondents are male, while 67% are female. Regarding the place of living 42,9% live in the village, while 57,1% live in urban areas. In terms of age grouping, 65,9% of the respondents are between 19-24 years old, 18,7% are between 25-30 years old, then 15,4% are between 31-39 years old.

Table 4. Age of the respondents

Years	Frequency	Percent
19-24	60	65,9
25-30	17	18,7
31-39	14	15,4

Source: Own analysis.

Table 1 shows the correlations between the "entrepreneurship development" and "labour market" in Kielce - the capital city of the Świętokrzyskie Voivodship. As may be seen, the correlation between these variables is statistically significant, and "variables" are positively correlated (rho = .379, p< .01).

Table 5. Correlations between variables: "Entrepreneurship development" and "Labour market" (The city of Kielce – the potential of)

			Entrepreneurship development	Labour market
Spearman's rho	Entrepreneurship development	Correlation Coefficient	1.000	.372[**]
		Sig. (2-tailed)	.	.000
		N	91	91
	Labour market	Correlation Coefficient	.372[**]	1.000
		Sig. (2-tailed)	.000	.
		N	91	91
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Own analysis.

Next, I examined the results of „Economy and entrepreneurship" factor as a potential of Świętokrzyskie Voivodship development. For respondents this factor did not prove to be "crucial" as a potential of Świętokrzyskie Voivodship development. 19,8% indicated is as a "medium" importance (rank 5 at the scale of 10). Only 6,6% indicated "the highest importance". However for 31,9% this factor was very important (sum of the rank 2 and rank 3 at the scale of 10).

Table 6. „Economy and entrepreneurship" as a potential[19] of Świętokrzyskie Voivodship development (data in %)

Scale	Economy and entrepreneurship
1 The Highest importance	6,6%
2	16,5%
3	15,4%
4	9,9%
5	**19,8%**
6	9,9%
7	8,8%
8	6,6%
9	4,4%
10 The Lowest importance	2,2%

Source: Own analysis.

Analyzing barriers of the Świętokrzyskie Voivodship development the „Low level of investment attractiveness" proved to be very important – 22% indicated it as a very high importance (ranked 3 at the scale of 10) and 19,8% pointed as a the highest importance (ranked 1 at the scale of 10).

Table 7. "Low level of investment attractiveness" as a barrier[20] of the Świętokrzyskie Voivodship development (data in %)

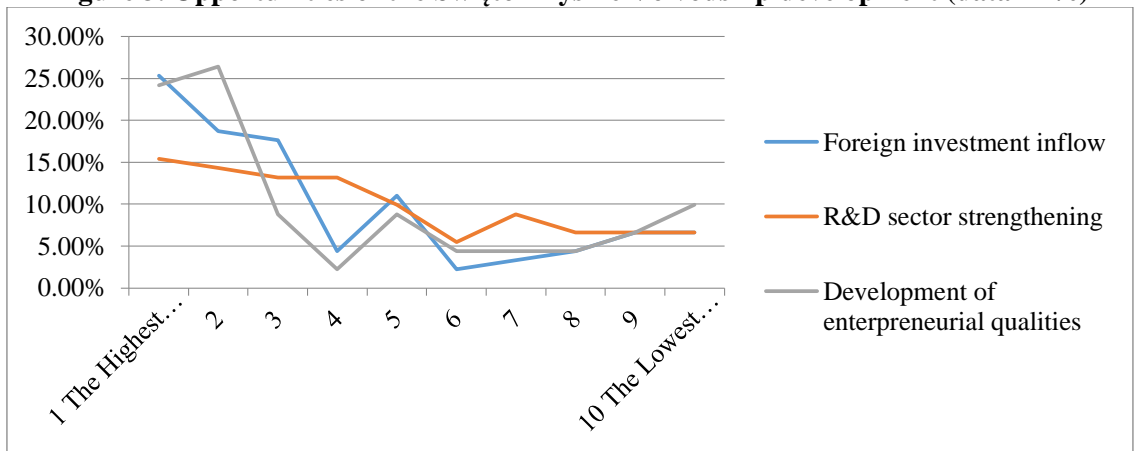| Scale	Low level of investment attractiveness
1 The Highest importance	**19,8%**
2	7,7%
3	**22,0%**
4	8,8%
5	9,9%
6	6,6%
7	6,6%
8	6,6%
9	2,2%
10 The Lowest importance	9,9%

Source: Own analysis.

Focusing on opportunities of Świętokrzyskie Voivodship the most important turned out to be the development of entrepreneurial qualities – 51 per cent of respondents (sum of rank 1 and rank 2 at the scale of 10).

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[19] Variable „Strong" in the SWOT analysis.

[20] Variable „Weak" in the SWOT analysis.

Figure 3. Opportunities of the Świętokrzyskie Voivodship development (data in %)

Source: Own analysis.

In terms of threats of Świętokrzyskie Voivodship development there were compared level of investment attractiveness, level of capital investment and level of entrepreneurs innovativeness. The main threat proved to be the low level of investment attractiveness.

Figure 4. Threats of Świętokrzyskie Voivodship development (data in %)
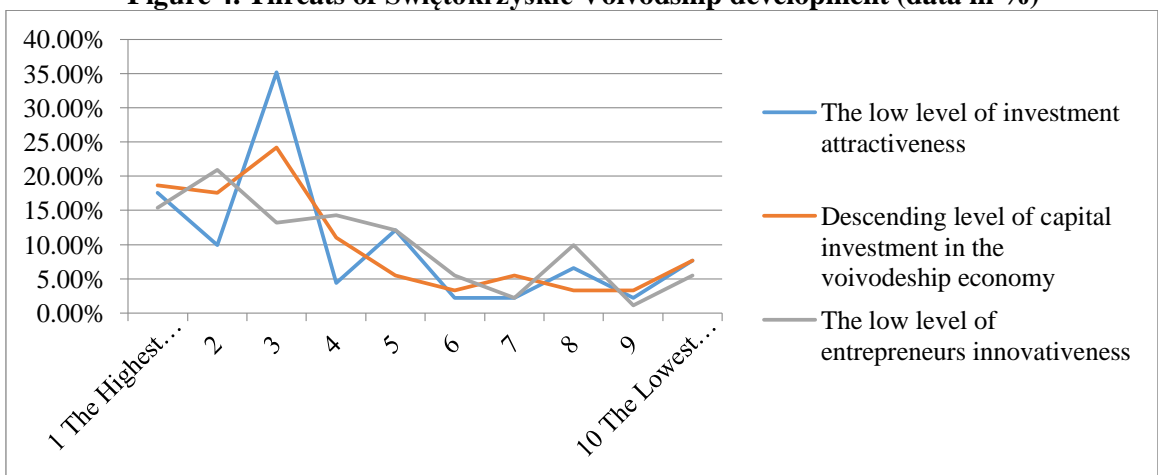
Source: Own analysis.

Conclusion: The entrepreneurship is a key driver of regional economic development. The realized survey of Świętokrzyskie Voivodship confirms this thesis. One the one hand, this region needs to be seen as an attractive for local, regional, macro-regional and foreign investors, but on the other hand, the economic development of this region depends on entrepreneurial qualities among the inhabitants (especially the younger).

Unfortunately respondents do not see a relation between entrepreneurial qualities (high importance) and R&D sector strengthening (medium-low importance). Local companies must understand that their economic development depends on R&D departments operating in their areas.

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1. Aghion P., Akcigit U., Howitt P., *What Do We Learn From Schumpeterian Growth Theory?*, http://scholar.harvard.edu/files/aghion/files/what_do_we_learn_0.pdf [March 03, 2015].
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